

Lead Industries Association

420 LEXINGTON AVENUE

NEW YORK, N.Y.

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TO THE MEMBERS OF THE LEAD INDUSTRIES ASSOCIATION:

Research on Protective Pipe Coatings

Last May the Lead Industries Association learned that the American Gas Association was cooperating with the Bureau of Standards in an investigation and actual field test of pipe coating materials used for protecting gas lines from corrosion. Inasmuch as red lead is an excellent protective material for ferrous metals, we were curious to know whether the proposed investigation was designed to include red lead among the coatings to be tested. We were especially interested in the subject as recent experimental work in California indicated that red lead, when baked upon pipe, makes an unusually effective priming coat. Baking seems to prevent any possibility of chemical or solvent interaction between the red lead and the secondary coal-tar or asphalt coating.

Upon inquiry we discovered that the test was to be competitive but intended to apply only to asphaltic and bituminous materials. We outlined this situation to the Directors and were authorized by them to see if, in the interests of red lead, the Lead Industries Association would be welcome as a participant in the proposed investigation. The National Lead Company kindly offered to place the facilities of its laboratory and staff at our disposal and assisted greatly in subsequent developments.

We thereupon visited Washington to persuade the Bureau of Standards and the Gas Association to enlarge the scope of its proposed test to include red lead and although we made our request at the eleventh hour both parties agreed to our suggestion.

Accordingly we have entered red lead in competition with numerous other protective pipe coating materials in the investigation mentioned above. During July and August untreated specimens of steel pipe were coated at Versailles, Pa., with coating compounds used by gas companies. In our case we decided to use two different types of coating, (a), a priming coat of red lead baked upon the pipe, followed by an application of an asphaltic coating and wrapper manufactured by the National Tube Company, (b), a red lead coating baked upon the pipe followed by a secondary coating of a bituminous material, - in this case a product of the Valles-Dove-Hermiston Company - bitumastic enamel. The application of the red lead coating was supervised by the National Lead Company. It was, of course, impractical for us to test every asphaltic and bituminous coat in conjunction with the use of red lead.

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However, we feel quite satisfied that, if the test should bear out our belief that red lead is the premier industrial priming coat, the specifications we have outlined will demonstrate this point.

Here we may say that, for test purposes, the specimen pipe of the National Tube Company used by all the contestants was cleaned by sand blasting just before being coated and, in our case, a coating of red lead applied and the pipe heated to approximately 300°F for about fifteen minutes so as to bake the red lead coating. The red lead paint had the following composition:

Dry red lead	33 lbs.
Pure Boiled Linseed oil	3 qts.
Pure Turpentine	1 qt.

The red lead had a Pb_3O_4 content of about 90%.

The linseed oil was the old fashioned kettle-boiled kind.

It is planned to bury the coated specimens in various types of soil distinguished for their corrosive action. The following cities and soils will in all probability be the places of test:

Brockton, Mass. & Atlantic City, N. J.	- Tidal Marsh.
Raleigh, N. C. & Atlanta, Ga.	- Cocil clay loam.
Miami, Fla. & Palm Beach, Fla.	- Muck or Peat soils.
Bryan, Texas & Shreveport, La., or Bunkio, La.	- Miller clay.
Shreveport, La.	- Susquehanna clay.
Pittsburgh, Pa. & Cleveland or Buffalo or Milwaukee	- Cinders.

The arrangements for testing the coated pipe in alkali soils have not been completed but three sets will probably be buried somewhere in California.

Although it will take a year, or several years, to determine whether or not under the conditions of the test, red lead makes the best primer, this technical research is eminently worth while because of the large amounts of coating material used in the United States each year and the important new market which may become, therefore, open to red lead. Gas lines twenty-four inches and over in diameter are common and use large amounts of coating material where soil is corrosive.

Respectfully submitted,

F. E. Worman
Secretary.